



Customer Success Story: NDE Technology

High-Stakes Savings: NDE Technology Automates BOP HX Inspections with RevospECT HX Pro



“Automating the analysis allows us to perform high volumes of tube inspections quickly with better accuracy and consistency. The savings from plant uptime alone translate to millions of dollars for our customers.”

Marc Brown,
Principal Level III & Partner,
NDE Technology

During nuclear power plant heat exchanger inspections, some of the most vital tasks are the most mundane.

“It’s tough for the inspection team when they’re assigned to test literally tens of thousands of tubes in a window of less than two weeks,” says Marc Brown, Principal Level III and a partner at NDE Technology in Jackson, Mich., which specializes in eddy current and other non-destructive examination services to the nuclear power industry. “On one hand there’s a lot of pressure to be productive and accurate. On the other, manual inspection and analysis is repetitive and frankly boring work. That’s why we embraced Zetec RevospECT HX Pro automated eddy current inspection analysis software.”

Based on Zetec’s successful RevospECT software, RevospECT HX Pro was designed specifically to meet the needs for eddy current inspection and analysis of a wide variety of heat exchangers in the power generation and industrial environments. The software retrieves and analyzes eddy current data from heat exchanger tube inspections as it is being acquired.

Demanding Inspections

NDE Technology was an early proponent of RevospECT HX Pro, which Brown says is ideal for demanding balance-of-plant heat exchanger condition assessments.

“Automating the analysis allows us to perform high volumes of tube inspections quickly with better accuracy and consistency,” he explains. “The savings from plant uptime alone translate to millions of dollars for our customers.”

Brown describes a public utility with a boiling water reactor where the condensers have roughly about 12,000 titanium tubes in each water box—approximately 50,000 tubes total. Each tube is 55 feet long and has 15 support plates with a stake evenly spaced between them to help stiffen the tube bundle.

“We believed that some of these stakes were slipping out of position and sliding close to the support plate, putting circumferential stress on the tubes,” Brown said. “Under high-cycle vibration, tubes will relieve this stress by cracking axially or longitudinally. We created a plan to map each stake’s location and monitor any movement from its original position as a way to identify high-risk tubes.”

800,000 Stake Locations

It was a big job. “All told, we needed to map roughly 800,000 stake locations between two reactor units,” Brown said. He estimated that doing the work manually would take at least 2,000 man-hours, with a large error factor.

“Each inspector is going to measure a little differently, and the accuracy and approach of each individual is going to vary over thousands of measurements,” Brown said. “With RevospECT HX Pro we could inspect 12 tubes at a time in about three seconds, looking for high-risk indications. In a matter of hours, we were able to give the customer a map of what we considered high-risk tubes caused by stakes that were not properly inserted or had moved. That’s impressive, and it added no time to our schedule or required nothing in the way of special skills or equipment.”

Historic Data Compare

NDE uses RevospECT HX Pro with Zetec HDC, or Historic Data Compare, to consistently monitor changes over time. In a few seconds, an entire tube can be scrolled to view degradation in a true “apples to apples” comparison of inspection data.

“We’ve done these inspections at this particular plant for three years straight,” said Brown. “With HDC, we can easily focus on those high-risk tubes to see if the stakes are continuing to move, and if so we can determine by how much. We could never have done this manually.”

Brown says the use of automated data collection and analysis allows NDE to be more productive and to keep its eddy current technicians busy.

“With the power industry, the inspection windows are narrow and specific: one eight-week period in the spring, and another in the fall. So you have to get your work in because of demand for power,” he said. “By using RevospECT HX Pro, it makes my people available to do more work and it gives me the flexibility to match the manpower to the job. It’s given us the ability to have everyone working during the season.”



Zetec, Inc.
8226 Bracken Pl. SE | Suite 100
Snoqualmie, WA 98065
Toll Free: 800.643.1771
P: 425.974.2700